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AN ATTEMPT TO HARMONIZE THE CURRENT PSYCHOLOGICAL THEORIES OF THE JUDGMENT.<sup>1</sup>

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Leaving aside for the moment the judgment of formal logic and all considerations of language, we may say that there are four apparently widely divergent uses of the word judgment in popular speech and in well recognized theories. These are, first, the theory of Brentano that judgment is belief, a process that must be gone through with for each sensation or idea that comes to consciousness whether the result be positive or negative. Brentano, it will be remembered, assigned no laws to belief nor made any attempt to analyze it. The second, widely prevalent in popular usage and given psychological vogue recently by Marbe, is that judgment is comparison. A third even more general popular usage, made fundamental for theory by Meinong, Ehrenfels and recently adopted for the emotions by Ribot, is that judgment is a process of evaluation, or the process of assigning anything its place in a scale of values. The fourth, the familiar definition of modern logic, is that it has to do with the process of ascription of meaning to the given.

In formulation, at least, there seems nothing in common between the different definitions, and it seems worth while to examine them objectively in an endeavor to discover what there is of identity between them. For psychological purposes there is more immediate evidence of resemblance between the last three, so we may consider them first, and proceed at once to a psychological examination of each.

The process of comparison is one that close observation shows to be very different from what it is ordinarily supposed to be from a

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*priori* considerations. Theoretically and logically the process would seem to be one of a definite consciousness of two separate elements successively, and a weighing of one against the other until their relations are assured. As a matter of fact, however, what happens is merely that one is conscious of the two elements, and from that attentive consciousness the comparison results without any intermediate steps. The weighing is never in evidence. Even in cases of doubt where there is delay, all that can be discerned is that attention turns first to one then the other and alternates between the two terms until suddenly the doubt is resolved; the word heavier, brighter, louder or what not enters the mind, or if one is not to speak, some other symbolic imagery appears, and the comparison is complete. In all of Marbe's experiments there was never a sign of anything intervening between the perception and the completed judgment. One antecedent element that is always present, and essential, is that there be a purpose of comparing or a question of relation in mind before the objects are experienced or before the perception is completed. Under the influence of this question the two are experienced as one, and the comparison is completed.

Even more striking are the results of comparison when a considerable interval intervenes between the two experiences to be compared. Then, too, all that is necessary is to have in mind the question, Is this color brighter than the one I saw yesterday? and without any recall of yesterday's color the comparison is made. In neither case apparently is the consciousness of the comparison or its conscious antecedents much different from an ordinary instance of perception. There, too, we see what corresponds to the mood or purpose of the moment. If we have been asked, Is that object red? we notice the color; if, as we look at a landscape, we are interested in water for any reason, that at once leaps from the scene as we look. The result of comparison seems just as immediate and just as simple a result of the attentive regard as is the color or the lake in the universally accepted instance of perception. When two objects directly presented to consciousness are looked at with the appropriate problem in mind, brighter, larger, right or left, before or after, are just as much simple aspects of the situations as are gray or round, house or tree. The two terms are but parts of a larger whole, and the essential element in the process depends upon the unity of the whole rather than upon the *pdulicity* of the terms.

The next form of judgment, *evaluation*, is more closely connected with the former than might appear; in fact, it becomes but a sub-form of the first if we remember that evaluation is comparison of the object

to be evaluated with a norm, or preformed standard of value. That this comparison is not altogether different from the other is evident from two facts in connection with comparisons over long intervals of time: the one, just mentioned, that the first term is frequently not definitely conscious at the moment of comparing, and the second, a fact noted by Lehmann and recently by Hayden, that the comparison is usually not directly between the terms, but each is compared with an antecedently developed scale of standards. Lehmann in his classic experiment found that grays were recognized in terms of words in ordinary use that had a definite denotation for the observer. For Hayden in his comparisons of weights, the individuals were compared with a standard, but for his people the standard was visual rather than verbal. In Hayden's experiments and Lehmann's later ones, the standard developed in the course of the experiments; it was not given in advance. The tendency for standards to develop and for the individual elements to gravitate toward them is perhaps an explanation of Bentley's result that all of his colors shown in daylight tended to become brighter in memory, and for all those shown in the dark to darken. Here also we might find an explanation for Flournoy's results that the digits in memory tend toward the means, and away from extremes. There seems first a tendency for standards to develop from many discrete experiences and then for the individual experiences to tend toward the standards and be replaced by them in memory. If we turn to the application of valuation in the affairs of everyday life we have the basis of the methods of evaluation. When we judge a painting, we are giving it a place in our preformed scale. It is good, bad or indifferent with reference to other pictures we have seen, or with our standards that have gradually crystallized from the different examples of art that we have seen. We judge a man as good or bad according as he measures up to some one or other of our standards in the respect under consideration.

Ordinarily here, again, the first term in the comparison is not definitely in consciousness as the comparison is made; in many cases even the standards or scales have never been pictured in any definite form but the result of the comparison is none the less positive for all that. The standards, too, as in the experimental comparisons, gradually precipitate from many experiences, but when developed serve as more or less conscious elements in the evaluation of all other experiences. Evaluation is like comparison too, in that the particular evaluation made at any moment depends upon the problem in mind or upon the mental context. A man is adjudged now on the basis of scholarship, again for athletic prowess, good fellowship or morals. Which judgment is passed depends altogether upon circumstances of the moment,

as does the comparison or simple perception. If you are concerned in a business deal, an object is measured by its supposed monetary value; if in a scientific study, other standards are used and other judgments are passed, although the words used may be identical in each case.

Again, the only conscious part of the evaluation is the completed decision. There is nowhere consciousness of the standard; there is no weighing that intervenes; the purpose is in mind, the object or stimulus is presented, and its rank is assigned without any further thought or consideration. The thing is beautiful or ugly, good or bad, adequate or inadequate, and so far as we can observe at the moment, that is the beginning and end of the conscious process. There is no thought at the time of the innumerable experiences from which the standard has been precipitated, or of the standard itself, nor always of the mental context or mood that gives the final impetus to the process.

Judgment as ascription of meaning is but the next grade removed from evaluation. If we dare to ascribe concrete psychological body to meaning at all, we must define it as the standardized or harmonized experience. And we pass to this at once as we perceive or think of any object or thing. When we see an object across the room we see it not as the size it is upon the retina, but we see it of the size that it would have at the distance we have set for ourselves as its normal distance, a distance and size that have grown through use to be the standards of reference. And in every other imaginable perception we find that there is reference to standards of this kind. The thing never for a moment stands alone, but is always taken up into and given a position by a mass of previously organized experience. This organized system of knowledge not merely takes over the newly entering, but actually replaces it to such a degree that the standard or meaning alone comes to consciousness.

In other respects too the process of ascription of meaning is like the two earlier processes. It depends upon the mental context or situation which of the many possible meanings shall come out at any moment. A pebble is now an evidence of the glacial epoch, now a missile, again a complex of chemical compounds. Which of these and many other things it shall be at any moment is dependent entirely upon the situation in which the observer is placed, and upon his mood as he looks. As we have seen above, too, the meaning attaches at once and is itself the only conscious evidence of the accumulated experiences that are active in its production, or even of the stimulus that excited the process. Like evaluation and remote comparisons, it depends upon standards and scales, or at least schemata that have devel-

oped in earlier experience, and are aroused with the new process. In fact, so much alike are the three processes that it would be easy to say that comparison is but the ascription of one meaning, evaluation of another meaning. The difference lies merely in the fact that in comparison the meaning is ascribed to a whole in which two parts are distinct, while in evaluation and the ordinary judgments of perception there is but a single object. But when we remember that an object may be of any degree of complexity and still be regarded for the moment as a single object, and that what is now said to be single may be regarded as two or more objects at the next instant, the difference is not so great as to make the two processes altogether distinct.

There is nothing more mysterious about the comparison than about simple perception, in fact it may hardly be said to be more complex. If you are looking at a mass of presented material with the question heavier or lighter, the resulting process is comparison, just as when you look to determine the color the resultant process is green, or when you look at a rug with a view to purchase you conclude that it is beautiful and worth the price. These three operations, which have at different times been designated by the word judgment, are closely related and from the most essential points of view may be regarded as one, provided that one be ascription of meaning in a fairly broad use of the term.

Brentano's definition that judgment is a process of affirming or denying belief is related to the other group superficially in that it has to do with but a single term. It is different from them superficially, in that it apparently deals with a new process that is alleged to intervene between the entrance of the sensation and its full acceptance into the mental states. Observation does not seem to confirm this intervening state of the bare sensation unbelieved and undenied. Rather may we assert with Bain that every process that enters consciousness is at once believed and that the very conditions of its entrance are at the same time the conditions of belief. We may perhaps go farther and assert, for there is no time to prove, that the mood and the crystallized experience that together impel to the ascription of meaning and constitute the meaning, are at the same time the elements that determine belief. If there is but one meaning that can be attached at any moment, and that meaning does not conflict with any of the earlier developed schema, then we have belief. Whenever, however, the situation, mental and physical, makes either one of two meanings possible, or there is conflict between the most evident interpretation and the earlier schemata, then comes doubt or if the conflict be too great positive disbelief. If we accept this view, then we would have belief not the end of judging,

to be sure, but an invariable concomitant of the processes that are involved in judging in the trio of definitions discussed above. While Brentano's definition can not be said to apply to the same process as the others, still he indicates as essential a valuable by-product of the ascription of meaning.

The most recent definition, as formulated by Miss Thompson and other students of Professor Dewey, presumably by Professor Dewey himself, comes very easily under the first category, with one slight exception. Judgment is defined as the ascription of meaning, and is made to grow out of the situation. The only departure is that apparently doubt or conflict is regarded as essential to the process. This reduces again in terms of meaning to the possibility of attaching two meanings rather than one to the object that is entering consciousness, that the mood or the external situation is such that the two interpretations strive for the mastery for a time before one wins and the corresponding meaning is attached. The difference is largely one of the application of terms. Everyone must admit that the instants of doubt unresolved are those in which consciousness is most complete and full, but whether the term judgment should be restricted to these conditions and not be used also to describe cases in which the same end is attained without the by-product of doubt, is a question. The meaning attaches just as surely, the final result is just as true, in many instances in which doubt is absent and the meaning attaches at once as in those where two meanings struggle for the mastery. It seems to the writer that if the criterion of judgment be effectiveness, or if it be the nature of the situation objective or subjective, then the broad application is the better one; if it be a matter of the emotional accompaniment of the process, then the narrower alone would be possible. Historically and in popular usage, too, the broader use has the advantage of greater currency.

The differences, however, are in minor points. In the broad outlines there is agreement between all five of the definitions considered. In some form or other judgment is the process that an impression undergoes as it enters consciousness, and this interpretation is always due to the attachment of meaning. How important the belief attitude may be that arises in connection with the process is not as yet matter of absolute agreement, but that is after all a minor matter in comparison with the other.

The question as to how this psychological process finds expression in language is by no means agreed upon, but fortunately that is not a matter that we must face in this connection.

## METHODS OF INVESTIGATING THE PROBLEM OF JUDGMENT.

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That there is a considerable harmony between our various psychological theories of judgment, Professor Pillsbury has shown in the preceding paper. That also there is a certain amount of agreement between the various logical theories, and even between the logical and psychological theories, is perhaps susceptible of proof. And we regard it as a valuable and indispensable contribution, when one thus shows up certain points of doctrine which have received general assent. Corresponding to this, a complementary contribution is needed, bearing upon the differences in the theory of judgment. For while there is undoubtedly much agreement about the general nature of judgment, yet when we come to questions of detail and especially to the methods of investigating those questions, there is much difference of opinion. For example: Brentano, Marty and others have said that judgment need have no complexity of content, while Erdmann, Wundt, Sigwart and others insist on a certain amount of complexity, as much namely as lies in the subject-predicate structure. Again Wundt maintains that the judgment consists in our marking articulate (*Zerlegung*, *Gliederung*) a total idea; Sigwart<sup>1</sup> declares that this articulation is but a preceding condition of judgment while the judgment itself arises only when we unite the articulated parts. As to the impersonal judgment, Wundt, Sigwart, Lotze, Ueberweg and others ascribe to it a subject: Brentano, Miklosich, Marty, MacLennan, deny a subject. As to the nature of the subject-predicate relation, we have the *Verschmelzung* of Herbart, the old subsumption-view, the stimulus-response view of Dewey, the feeling of *necessary* union of Sigwart, the identity-relation of Natorp, the 'absolute connection' of Bosanquet,<sup>2</sup> the logical immanence of Erdmann, the 'negative relation' of Schrader. No doubt a certain harmony exists between all of these differences, but the disagreement is certainly more striking than the agreement. Now it is generally true that differences in result are due either to defective method or to thoroughgoing difference of method. And

<sup>1</sup> *Viertelj. f. wiss. Philos.*, IV., p. 460.

<sup>2</sup> *Knowledge and Reality*, p. 170.

the literature of our problem shows this to be the case here. The methods are defective in that none of them gives, in questions of detail, very much that is indubitable empirical fact. Perhaps this is nobody's fault; perhaps such indubitable fact is almost unattainable in this region: at any rate introspection seems almost powerless to throw any light on questions like the above; and other methods, as we shall see, have special pitfalls of their own. As to the differences of method, we see in the literature of the subject a conflict seemingly irreconcilable. Thus, Jerusalem and others<sup>1</sup> believe that the matter ought to be studied as a psychological problem; Husserl, Schuppe,<sup>2</sup> and the majority of logicians believe it to be a conceptual affair essentially; Erdmann<sup>3</sup> believes that the linguistic expression of judgment has important bearing on the logic and psychology of judgment while Royce<sup>4</sup> seems to deny this. Now is it surprising, in view of the defect of our methods (call it the excessive difficulty of the problem if you like) and the hostility between the various methods, that our results disagree? And so it seems to me desirable to attempt a contribution complementary to that of the preceding paper; to give some account of the different methods. Many will think that we have had too much discussion of method and too few positive results; yet results are so desperately hard to get, that we need every means of getting them we can carry. We need to have in mind a fairly complete summary of all the methods known, to have as exact as possible a definition of each, to know what result a given method *can* secure and what it *cannot* secure, what are the advantages and the dangers of each.

I find in the literature of the subject four methods, which I call (1) the linguistic, (2) the psychological, (3) conceptual-symbolic, (4) the genetic. In the account which follows it is practically impossible to attain completeness: I select only those writings which seem to me good illustrations of the methods in question, and lack of space compels me also to omit the genetic method.

1. *The Linguistic Method*. — By this I mean, observation of the structure of sentences, of grammar and syntax, past and present, in all

<sup>1</sup> W. Jerusalem in *Viertelj. f. wiss. Philos.*, XXIII., p. 157, and J. von Kries, *ibid.*, XXIII., p. 1 ff. Psychological theories of the judgment are given by Herbart, Mill, Brentano, Lipps, Marty, Sigwart, Hobhouse, Wundt, Schrader, Cornelius, Stout, Erdmann (in part) and others.

<sup>2</sup> *Archiv. f. syst. Philos.*, VII., p. 1 ff.

<sup>3</sup> *Logik* (1st ed.), p. 29, 223.

<sup>4</sup> 'Logical Inquiries and their Psychological Bearings,' *PSYCHOL. REV.*, 1902, p. 117

languages, as a guide to the knowledge of the psychical and logical nature of judgment. I say *all* languages, and thereby include sign and gesture language; though perhaps not much of the detail of judgment is to be learned from these, for they seem to be formless. Wundt's attempt to assign to them a form seems to depend too much on his own theory of judgment,<sup>1</sup> and has been severely criticised by Delbrück<sup>2</sup> and Sütterlin.<sup>3</sup> At any rate by far the richest field is that of articulate spoken and written language, and in what follows I refer to this alone.

This method may or may not be used in an exclusive manner. The exclusive use is characterized by the belief that the study of language is the sole and sufficient guide. Such was the attitude Max Müller<sup>4</sup> and K. F. Becker.<sup>5</sup> Those who do not so use the method believe that observation of language, though the basis of information, must be supplemented by introspection and perhaps other methods. The exclusive use has shown its futility and is now obsolete. The non-exclusive use is perhaps the oldest of all methods, and flourishes today more than is commonly thought. It has undoubtedly led to many discoveries, in spite of abuse and over-emphasis. As I believe that, though it has great dangers and is now rather unpopular, it is still of unique value, I shall give more space to it than to any other.

Its age is shown by reference to Plato and Aristotle,<sup>6</sup> whose theories of judgment are generally admitted to be linguistic. Their linguistic bent has been followed by the modern adaptation of Aristotelian logic: (the subject-copula-predicate theory.)<sup>7</sup> Indeed we may well say that very probably the idea that judgments have even a subject and predicate would not have occurred had it not been for the forms of language. According to Sigwart, "the judgment can be an object of scientific investigation only in so far as it is expressed in a proposition."<sup>7</sup> So we can hardly wonder that this should be the first method employed. Moreover it is always very difficult not to use it: for all examples of judgment are couched in language, and the classification of judgments into universal, particular, singular, impersonal, predicative, existential, etc., follows a natural linguistic clue. The tendency to believe that thought on the whole corresponds to language is illustrated by the philologists as well as the logicians. Both have contributed largely to

<sup>1</sup> *Die Sprache*, I., p. 204 ff.

<sup>2</sup> *Grundfragen der Sprachforschung*, p. 70.

<sup>3</sup> *Das Wesen der sprachlichen Gebilde*, p. 16.

<sup>4</sup> *The Science of Language*.

<sup>5</sup> *Organise der Sprache*.

<sup>6</sup> Plato, *Kratylos* and Aristotle, *de Interpretatione*, Ch. III. and Ch. V.

<sup>7</sup> *Logik*, Einleitung, § 8.

the theory of judgment from the linguistic point of view. Paul says: "The sentence is the linguistic expression or symbol, denoting that the combination of several ideas or groups of ideas have been effected in the mind of the speaker"<sup>1</sup> and "the grammatical relation is built up solely on the foundation of the psychological."<sup>2</sup>

Strong, Logeman, and Wheeler, following Paul, say "the sentence is the symbol whereby the speaker denotes that two or more conceptions have combined in his mind, and is at the same time the means of calling up the same combination in the mind of the hearer."<sup>3</sup> Waitz says: "A sentence is not formed of single independent words, but of words which refer to one another in a particular manner, *like the corresponding thought*"<sup>4</sup> (italics mine). Delbrück says: "A proposition is a consequent (erfolgende) expression in articulate speech *which appears to the speaker and hearer as a combined and closed whole*."<sup>5</sup> Sütterlin says that a proposition expresses "an idea, an ideal complex, or even a union of two ideas or two ideal complexes, which appears to the speaker and hearer as a combined and closed whole."<sup>6</sup>

[<sup>7</sup> Delbrück and Sütterlin differ here from Paul, because they believe that thought corresponds closely to language in the case of impersonals, vocatives, etc. Oertel says that sentences express "a compound idea, moulding it so that it will be articulate . . . and he (the speaker) does this because he cannot transmit a compound idea to his neighbor, but can only pass it on to him joint after joint and leave it to him to put them together."<sup>8</sup> It will be noticed that this view is a kind of compound of Wundt's and Sigwart's views. Von der Gabelentz says,<sup>9</sup> "To make thought clear is to articulate it (zergliedern). To the result of this articulating must correspond the linguistic expression." Sweet says:<sup>10</sup> "Words are combined into sentences, this combination answering to that of ideas into thoughts." And "every grammatical category is the expression of some general idea — some logical category."<sup>11</sup> Miklosich<sup>11</sup> unquestionably bases his belief in subjectless

<sup>1</sup>*Principles of Language* (Eng. tr.), p. III.

<sup>2</sup>*Ibid.*, p. 112.

<sup>3</sup>*History of Language*, p. 92.

<sup>4</sup>*Anthropologie der Naturvölker* (Eng. tr.), p. 241.

<sup>5</sup>*Vergleichende Syntax*, I., p. 75.

<sup>6</sup>*Op. cit.*, p. 306.

<sup>7</sup>*Lectures on the History of Language*, pp. 280-281.

<sup>8</sup>*Die Sprachwissenschaft*, p. 6.

<sup>9</sup>*New English Grammar*, Part I., p. 6.

<sup>10</sup>*Ibid.*, p. 10.

<sup>11</sup>*Subjectlose Sätze*. Cf. also Sigwart's criticism of Miklosich in *Die Impersonalien*, pp. 1-3.

propositions on the evidence of language, though psychological arguments are also used by him.

But not only philologists have used the linguistic method : our modern logicians use it constantly, even though it has been shown by Fr. Müller,<sup>1</sup> Bréal,<sup>2</sup> Sweet,<sup>3</sup> Steinthal,<sup>4</sup> Paul,<sup>5</sup> Marty,<sup>6</sup> Bosanquet,<sup>7</sup> Lipps,<sup>8</sup> Wundt,<sup>9</sup> and many others that thought and language are far from exactly corresponding. We find that some who recognize the discrepancy, themselves tend to overlook it. Symbolic logic, in its treatment of propositions, starts from a linguistic basis. That propositions *as logical subject-matter* contain a subject and predicate in the illative relation would probably never have been suspected if language did not appear to offer this relation, in the typical propositional form *A is B*. And is the illative relation contained in the proposition 'the man runs' or 'snow fell yesterday' ? That it is consciously meant by the one who speaks or writes the proposition, introspection will hardly establish. That it is implied, to subsequent reflection, in what is consciously meant by the speaker or writer may be the case ; but who has attempted to prove this ? To illustrate again how logicians rest on language : Mr. Bosanquet has pointed out<sup>10</sup> how Mr. Bradley, in spite of his professed aversion to the linguistic method, bases his refutation of the copula-theory on those very forms of language (*e. g.*, propositions like *Wolf!* or *Fire!*) he should repudiate. And any logician who argues from linguistic illustrations (and who does not ?) is really using the linguistic method.

So much for the method and for illustration of the frequency of its use. Now as to its dangers and advantages. It is clear that we are likely to run into error if we do not know where to draw the line between the forms of language and those of thought. It is easy enough to find divergence between thought and language, but a more difficult and more valuable service is in finding out just how far it extends. If it is short-sighted to expect exact correspondence between thought and language it is equally short-sighted to deny any correspondence at all — especially when you are surreptitiously arguing from linguistic

<sup>1</sup> *Grundriss der Sprachwissenschaft*, pp. 14 ff.

<sup>2</sup> *Semantique* (Eng. tr.), p. 220 ff.

<sup>3</sup> *Op. cit.*, p. 11.

<sup>4</sup> *Charakteristik*, p. 324.

<sup>5</sup> *Op. cit.*, pp. 18, 300.

<sup>6</sup> *Viertelj. f. wiss. Philos.*, VIII., pp. 71-75.

<sup>7</sup> *Logic*, I., pp. 79-80.

<sup>8</sup> *Logik*, p. 25.

<sup>9</sup> *Die Sprache*, I., p. 215 ff.

<sup>10</sup> *Knowledge and Reality*, pp. 156, 163.

models. The dangers, then, are twofold: we may expect too close a correspondence between words and inner thought-process or logical meaning, and we may go to the other extreme and deny *any* important correspondence. Today the latter course is the greater danger; we have reacted too violently against the Aristotelian tradition. The proper course will probably lie between the extremes: we shall make use of linguistic forms but shall know where to draw the line.

That the linguistic method may, in spite of all that has been said against it, possibly furnish some clues to the nature of the inner thought-process, will appear if we consider some of the arguments against it. Bosanquet says<sup>1</sup> that a judgment is an indivisible whole, while a sentence is a manifold of separate parts. A legion of writers have pointed out that the logical (or psychological) and the grammatical subject and predicate often do not coincide. Wundt<sup>2</sup> and others find that grammatical categories differ so widely in different languages, while judgment is practically one and the same everywhere, that there appears to be an utter discrepancy in structure between judgments and propositions. This, the argument from comparative grammar, is perhaps the strongest and most widely accepted objection to the claims of the linguistic method. Marty<sup>3</sup> shows that there is always some of our thought which escapes verbal expression, while verbal forms express feelings, interests, wishes, fears, etc., which are no proper part of judgment; also that speech was originally not designed to express thought-categories (differing here from Paul) but grew up in the vicissitudes of life. Now as to the force of these objections. Judgment may be an indivisible instantaneous whole and yet have a complicated internal structure, similar to that of the sentence. And curiously enough Bosanquet himself believes that it has.<sup>4</sup> The map we see at one glance has the same structure as the map we draw slowly. The discrepancy between logical (or psychological) and grammatical subject and predicate is admitted by most linguists, who nevertheless avowedly pursue the linguistic method. And further the inner thought might have a general correspondence in form to the verbal expression, without the same order or emphasis of parts, or without one-to-one correspondence throughout. Marty's first-mentioned objection only points out certain differences between thought and language, and does not, so far, even touch the question whether or not there may also be certain analogies. He might as well say I do not resemble my tall dark

<sup>1</sup> *Logic*, I., pp. 81-83.

<sup>2</sup> *Die Sprache*, I., p. 215 ff.

<sup>3</sup> *Viertelj. f. wiss. Philos.*, VIII., pp. 71-75.

<sup>4</sup> *Knowledge and Reality*, pp. 170-171.

brother in anatomical structure because I happen to be short and light-haired. As to his second objection, it is doubtful how far it is true, for many philologists do not accept it;<sup>1</sup> and even if true, it by no means precludes a correspondence. Do not our inner thought-processes, as well as our language, grow and develop in accordance with the practical needs of life?<sup>2</sup> As to the argument from comparative grammar, I can only indicate briefly why it seems to me inconclusive. How can you be sure whether this or that grammatical category or part of speech exists in a given language? Two kinds of test have been used. First, parts of speech were defined according to the nature of the facts to which they referred. Thus, a verb was supposed to denote *always* a process, state, or activity; a noun, a thing or substance; an adjective, a quality or property. Wundt himself adheres to this kind of test,<sup>3</sup> defining a verb by the term *Zustand*; and also Müller,<sup>4</sup> defining a verb by *Thätigen*, as well as M. Bréal, who says,<sup>5</sup> 'the class of verbs presupposes a system of persons, tenses, moods.' Secondly, we find several writers defining parts of speech not by the nature of the facts to which they refer, but by the function they perform in the sentence.

According to this view, for example, we have a verb whenever we have a word *used predicatively*, whether that same word be used in other connections nominatively or adjectivally, or even adverbially, and whether it refers to a process, property, thing, person, or manner. This point of view is taken by O. Jespersen<sup>6</sup> when he speaks of 'utilizing word-position for grammatical purposes';<sup>7</sup> by Sayce when he quotes with approval from an anonymous work: 'It is not what a word signifies that determines it to be this or that part of speech, but how it assists other words in making up the sentence';<sup>8</sup> by Sütterlin in the following: 'The verb constitutes a class only because of its use in the proposition'<sup>9</sup> and "when the Hottentot says 'my eyes' for 'I see' he represents by his words today probably quite the same as

<sup>1</sup> *E. g.*, Paul, Sweet, Strong, Whitney, v. der Gabelentz.

<sup>2</sup> Professor Baldwin has emphasized the social character of thought and shown how its development as an inner process is intertwined with its development according to the needs of linguistic usage. Cf. 'Thought and Language,' *PSYCHOL. REV.*, May, 1907.

<sup>3</sup> *Die Sprache*, II., p. 130.

<sup>4</sup> *Grundriss der Sprachwissenschaften*, p. 108.

<sup>5</sup> *Semantique* (Eng. tr.), p. 187.

<sup>6</sup> *Progress in Language*, p. 97 ff.

<sup>7</sup> *Ibid.*, p. 110.

<sup>8</sup> *Principles of Comparative Philology*, Preface, p. ix.

<sup>9</sup> *Op. cit.*, p. 80.

we ourselves by our words'<sup>1</sup> and 'if position decides whether an adjective is used verbally or not, it is the same as if we had a verb, not an adjective.'<sup>2</sup> Also Bosanquet says:<sup>3</sup> "Some languages, we are told, have not the distinction between noun and verb. They must, however, have some way of indicating when a word carries a predication: *and this sign, whatever it may be, belongs to language.*" Now inasmuch as parts of speech depend for their very existence on their being in the sentence, this second way of testing their presence in a given language seems much more logical and more in accordance with the living use of language. If we adopt it, we find that Bosanquet's statement above is well borne out. Almost every known language seems, according to the evidence of Fr. Müller's encyclopædic *Grundriss*, to have some fixed way of indicating the predicative relation, whether by order, pronominal suffix, accent, or something else. It seems justifiable then to make the general induction that every language contains both noun and verb in at least *some* of its sentences — if we adopt the test suggested above. And so the argument from comparative grammar does not militate against a general, though far from detailed, correspondence of thought and language.

Assume now that we find a general common usage, among practically all known languages, which reveals the predicative relation. This should furnish good evidence that those judgments which are expressed by this relation, themselves contain it, as inner thought-processes. For why should *not* the inner thought-process correspond to the outer verbal form? What would prevent that correspondence? Many preventing factors may be named; varying racial characteristics, need of brevity, esthetic charm, custom, analogy, influence of languages on each other, practical needs, and so on. But what is common to all, or nearly all, languages, would probably be free from the influence of these factors; for these factors all vary more or less in different linguistic stocks. The common structural element would not be due to the influence of any of these factors; it would be due to one factor not yet mentioned, namely, the desire of the speaker to reveal by his words what is in his mind. For this factor may undoubtedly be verified by introspection today; and I know of no linguist who has thought of denying its existence. Whether the speaker desire to reveal his inner thought-processes for theoretical, practical, or esthetic purposes, we cannot deny that he still would naturally tend to reveal them in his speech. The common structural element in all languages, then,

<sup>1</sup> *Ibid.*, p. 125.

<sup>2</sup> *Ibid.*, p. 162.

<sup>3</sup> *Knowledge and Reality*, pp. 170-171.

should correspond fairly well to the inner judgment. Indeed if we consider the matter genetically, we cannot fail to be impressed by the close interdependence between the development of judgment and the development of language. I may quote here a remark of Professor Baldwin:<sup>1</sup> "In language . . . we have the tangible — the actual and historical — instrument of the development and conservation of psychic meaning."

Having by the linguistic method thus gotten an essential criterion of many judgments, it would remain to investigate the nature of this criterion. We need to know what the subject-predicate relation is: how to define it, how to reduce it, if possible, to lower terms. As to the question, what it means to us psychologically, work has been done; *e. g.*, by Professor Marty<sup>2</sup> and by Miss E. H. Rowland.<sup>3</sup> Professor Marty, unfortunately, is already pledged to Brentano's theory; he therefore attempts to explain away that relation by the concepts 'double-judgment,' 'zuerkennen' and 'aberkennen.' To my mind this adds nothing to our knowledge, and explains nothing (especially as he regards the two last concepts as indefinable); but the question is still an open one, and I think Professor Marty's uncommonly thorough studies deserve more attention than they have received. Miss Rowland's interesting study labors, I venture to think, under a mistaken idea of what constitutes a part of speech; especially in her treatment of verbs. Her view seems to me to fall under the first of the two tests mentioned above. Her verbs are words denoting action; whereas we use many verbs which do not denote action, such as *be, lie, suffer, seem*. A part of speech should be defined by its function in the sentence, not by the kind of fact to which it refers. The problem, however, is being attacked, and we may hope that more work in this field will be done.<sup>4</sup>

What, then, is the advantage and what are the limits of the linguistic method? Its unique advantage is that it should give, by an empirical induction from tangible, undoubted facts, something of the structure of the inner thought-process. Where introspection fails there objective physical evidence must take its place. Its limit is, that its

<sup>1</sup> 'Thought and Language,' *PSYCHOL. REV.*, May, 1907, p. 191.

<sup>2</sup> *Viertelj. f. wiss. Philos.*, VIII., pp. 56, 161, 192; XVIII., pp. 320, 421; XIX., pp. 19, 263.

<sup>3</sup> 'The Psychological Experiences connected with the different Parts of Speech,' *PSYCHOL. REV.*, Mon. Suppl., Jan., 1907.

<sup>4</sup> Of course I do not say that *all* judgments contain the predicative relation. Some may have no subject, some no predicate, perhaps. This leads to the familiar problem of impersonals and existentials.

results are not themselves psychical or logical material, and must be *interpreted* by psychological experiment and analysis and by logical analysis. They give at most only the skeleton, not the living process. For example, when we find the subject-predicate structure in propositions and therefore in judgments, we need further to know the psychological and logical meaning of that structure. Or when we find (if we do) that many propositions (and therefore judgments) lack structure entirely, we must apply some other method than the linguistic, to investigate their nature. The linguistic method can serve as a good foundation for the theory of judgment; it cannot give an exhaustive analysis of its psychological or logical meaning.

2. *The Conceptual-Symbolic Method.*—This has two parts: a conceptual basis and a superstructure of symbolic method. Its basis is the belief that the judgment is properly not a psychical event or process. "No mere psychical occurrence," says Bosanquet,<sup>1</sup> "can by any possibility be a judgment." It is out of the question to discuss here the grounds for this belief; they depend on philosophical considerations to the effect that meanings, universals, and the entities of logic are non-existential, non-sensuous, something like the Platonic Ideas.<sup>2</sup> This view is shared by Husserl, Schuppe,<sup>3</sup> G. E. Moore,<sup>4</sup> Bradley,<sup>5</sup> Bosanquet,<sup>6</sup> Erdmann,<sup>7</sup> Marbe,<sup>8</sup> and many others, and is<sup>9</sup> among logicians, perhaps the prevalent view today.<sup>9</sup> As to the superstructure, or symbolic method proper; the nature of the conceptual subject-matter which makes up judgment (generally called the *proposition*, because it contains the relations indicated by linguistic forms) is to be investigated as a branch of mathematics or logistics. Writers in this field are well known: Professor Schroeder, Mr. Peirce, Dr. Ladd-Franklin, Professor Royce, Mr. Russell, Couturat, and many others.

This method is relatively new (dating probably from Leibniz) and so far has devoted itself more to the forms of reasoning than of judgment; but contribution has been made to the latter. For our purposes it is so unambiguous a method as to need no definition; I

<sup>1</sup> *Logic*, I., p. 75.

<sup>2</sup> Cf. B. Russell, '*Principles of Mathem.*,' Preface, p. viii.

<sup>3</sup> *Archiv. f. syst. Philos.*, VII., pp. 6, 10.

<sup>4</sup> *Mind*, 1889, p. 177 ff.

<sup>5</sup> *Principles of Logic*, Ch. I.

<sup>6</sup> *Op. cit.* above.

<sup>7</sup> *Logik* (1st ed.), I., p. 243 ff.

<sup>8</sup> *Experimentell-psychologische Untersuchungen über des Urtheil*, Ch. III.

<sup>9</sup> Cf. *Proc. Arist. Soc.*, 1905-6, p. 224 ff.

proceed at once to state what seems to me its unique fruitfulness, and what its special danger, as applied to our problem.

Dr. Ladd-Franklin showed<sup>1</sup> that if the usual illative relation of the proposition is replaced by a symmetrical copula, the latter will suffice to give all the results the former could give. Thus, if instead of *x is y* we read *x is inconsistent with not-y* (two symmetrical relations instead of one asymmetrical relation) we get the same results as before. It would follow then, that the predicative relation is no ultimate, irreducibly asymmetrical affair, as Erdmann, Marty and others seem to think. Here logical analysis has thrown light on the make-up of the subject-predicate relation; and it suggests that more may be done, in the way of reducing that relation to even lower terms. This brief indication shows, I think, the kind of work which only the symbolic method can do. Namely, it can take as subject-matter for analysis what we learn from other methods about the structure of judgment and give a definition of it, in terms of logical indefinables. We shall learn then, what a knowledge of the actual occurrences in judgment would never tell us, the *significance* of those occurrences with respect to a system of logical values. Psychology, language, and genetic method may give us the facts about judgment; but definition of those facts in terms of logical indefinables they cannot give, without themselves using the symbolic method.

The danger to which this method seems to me liable is suggested by an objection which many logicians might offer to the above remarks. I said, the symbolic method should analyze the meaning of the data given it by psychological, etc., study of the *actual occurrences* in judgment. Many logicians, however, maintain that they do not study facts, and are quite indifferent as to whether their subject-matter *exists* either physically or psychically.<sup>2</sup> Now in one sense no one need hesitate to admit this. If we inquire whether we actually have in mind a symmetrical copula when we make a judgment like 'the man runs' we find that in most cases we do not. But the symbolist may be concerned with the logical significance of what we actually have in mind; and it is no concern of his, whether or not we have that significance actually in mind. He must therefore *abstract from* existence. But it is quite another thing to *deny* that his terms and relations apply to existing psychical processes. His danger, I think, lies here. If he does not take as his data the facts of judgment or some part of them,

<sup>1</sup> Paper on *The Algebra of Logic* in *Johns Hopkins University Studies in Logic*.

<sup>2</sup> Cf. B. Russell, *Mind*, 1905, p. 398.

he will be told by the psychologist, "You are studying a very interesting problem no doubt, but it is not the sort of thing men have in mind or mean when they daily make judgments, nor is it essentially connected therewith. You have therefore no right to call it the symbolic study of judgments or propositions." In short, if his contributions are to be anything but consequent imaginations, however well-knit in structure, they must *start from* solid psychological ground. Otherwise they do not constitute knowledge; they are mere works of art. And I take it, no devotee of 'logistic' wishes to occupy himself *only* with designing well-proportioned castles in the air.

3. *The Psychological Method.* — By this I mean, investigation of such facts as (1) what actually is above the threshold of consciousness when we judge; (2) what conditions our judging and results from it; (3) what significance it has for general psychical life; (4) its physiological correlates, if it has special ones; (5) its underlying 'dispositions' psychological or physiological, and so on. These may be investigated in the individual judging alone or in communication with others, or in its pathological manifestations, and so on, following the current divisions of psychology. The methods used are two; either direct introspection, or inference from observed physical events to the inner thought-process. Of course I abstract here from the genetic study of the above questions.

This psychological procedure has been *used* more, perhaps, than any other except the linguistic. Almost all the standard treatises of logic give some psychological account of the matter. The advantage of this procedure, *if it could be carried out*, is obvious; it deals with facts, and without proved facts, no respectable theory of the judgment can exist. That it has been carried out to a certain extent, with general agreement between the results of different investigators, Professor Pillsbury has shown. But beyond a certain extent, there does not seem to be much hope of demonstration of results. For we cannot make much use of introspection; and introspection is naturally surer than inference from physical events. Marbe's failure<sup>1</sup> to get results is only what one might naturally expect.<sup>2</sup> Judgment is so habitual with us that its machinery (if it has any) has practically all disappeared from consciousness. Marbe's conclusion from his failure, that judgment is not essentially a psychical process at all, is however, quite unwarranted. As well say that there is no psychical process in count-

<sup>1</sup> *Op. cit.* above.

<sup>2</sup> Cf. Professor Royce's criticism of Marbe in his above-mentioned paper, pp. 116-117.

ing, because adults have learned to add instantaneously. If any progress is to be made however it would seem that it must be by inference from the physical manifestations of judgment or by introspection of other phenomena which are conditioned by judgment. Here the field is open enough, and astonishingly little has been done. It is to be hoped that experimental psychologists will take up the problem. At present the best we can do seems to be to fall back on the linguistic method, but this, as we have seen, gives only the skeleton of their judgment.

If we would investigate the judgment as a living process, we had better turn, I think, to the genetic method. But examination of this must be deferred.

## PSYCHOLOGICAL LITERATURE.

### SCIENTIFIC CONCEPTS.

*Ueber die erkenntnistheoretischen Grundlagen der biologischen Naturwissenschaften. Mit speziellen Rücksicht auf : A. Pauly, Darwinismus und Lamarckismus.* F. v. ASTER. Viertelj. f. wis. Phil. u. Soziol., 1906. 397-435.

The impression which one gets of this article is, that, although it contains much of value, the program which the author has indicated by his title has been carried out only very incompletely. For, while the epistemological foundations of biology are many and far-reaching, the author considers only those which concern evolutionary theory and teleological doctrine. As concerning these two, while it is to be admitted, perhaps, that they are very germane to biological problems in general, it is fair to ask if they are as much 'foundations' as they are inductive results.

The author first selects the Darwinian theory for discussion. Epistemological reflection shows that there are present in this two distinct elements, namely, the general evolution-theory *and* natural selection — the latter being Darwin's special contribution. The former conditions the latter, but not conversely. Objections can, of course, be offered to both — to the former that it is hypothetical, to the latter that it is impossible, but the general theory of evolution can not be given up without removing the basis on which the whole structure of the organic sciences rests. For it is by means of this alone that a 'natural classification' as the only correct and not-arbitrary one can be obtained. It is in this sense, then, that our author regards the theory as the 'epistemological basis' for the biological sciences.

However, the theory brings with it certain special problems, among which there is that of the origin of purpose-functioning organs, *i. e.*, organs adapted to certain ends, and by which species are separated from species. The importance of this problem is increased by the fact that the phyletic series presents in general a development from simple to complex — complex in the sense of the presence of organs serving more special ends.

The *simplest* answer to this problem is that the origin and development of such organs is conditioned by external life-conditions and their differences; but v. Aster thinks that really this accounts for

the purposefulness incompletely. In place of it the theistic view is sometimes advanced, but this is not scientific; yet it is as good as the explanation by 'nature.'

Now the Darwinian Theory, through its coördinate principles of variations, of superior adaptation, of advantage in the struggle for existence, etc., presents a definite answer. But the author considers — and not necessarily correctly, I hold, — that in such a scheme the external conditions furnish only the opportunity for the working of the 'Selection-principle.' The chief advantage of it is, however, that it is identical with a mechanical explanation of the origin of organic 'Zweckmässigkeiten.'

Yet to the Selection-theory many objections are offered; thus it is held, as against it, that the cause for adaptations is neither in the change of environment alone, nor in this *and* natural selection, but, rather, in the organism itself; *i. e.*, that there is immanent in it the ability to react in a purposeful manner. That there is a difference between this and the Selection-theory is clear to our author; for here, he says, we have mechanism and simplification, there, the acceptance of the presence in living matter of a causality not found in inorganic phenomena. Evidently he does not regard the question as settled, else why his discussion? Accordingly the special problem which is considered from this point to the end is whether organic causation is like inorganic. This is really the only 'Grundlage' discussed by him.

He begins by emphasizing a distinction between objective and subjective purposefulness. Thus, to say that an object or action is purposeful in the first sense means simply that it has as a necessary consequence the realization of something which is *regarded* as the end; but in this sense every effect is the purpose of its cause. On the other hand, subjective purposefulness means, not that a cause is *regarded* as means to a certain end, but that there is a consciousness of this end as an end and of the means as means; this the author calls purposeful *activity* (*Zwecktätigkeit*).

Now, our author continues, one can, of course, express or account for the presence of an objective purposefulness *metaphorically* by identifying it with an unconsciously working force or impulse (*Trieb*), but 'Trieb' in this sense is in no way analogous to a conscious volitional act. 'Trieb' has another sense, too, namely in the view that conscious acts of will presuppose impulsive action from which they originate, though in the first sense the term is sometimes used to designate the presence of something making for perfection, etc. (*Vollkommenheitstrieb*); but in no case does this furnish a scientific solution

of any problem; for perfection presupposes valuation, etc., and the question is left as much undecided as by the theistic position. More justified is it to speak of a 'Selbsterhaltungstrieb,' for this makes the origin of species from external causes understandable, though the 'end' might have to be regarded as the conservation of the species rather than of the individual. In fact there is always the possibility of a conflict between individual organism and species as well as one between cell and organism.

All these considerations lead the author to reformulate his question now as follows: Is the origin of purpose-working organs dependent on a 'Zwecktätigkeit'; or is it explainable by reactions, which, while conducive to a conservation of species, demand in no respect any kind of an immanent conscious principle? In answering this he directs his argument against an author, Pauly, who accepts the former position, considers himself a Lamarckian, regards the struggle for existence as a fiction, and insists that 'psychical factors' are everywhere effective in the organic world. He develops this as meaning that in every case the distinctive cause of a purposeful reaction is a psychical complex of 'felt need' and striving toward a 'known end' with the 'thought on the means' between these two. Briefly, he carries over into organic nature all the psychology of a human volitional act. For, he argues, if this is not done, then purposeful action takes place in two ways, namely, as a subjective, entirely conscious act, and as a mechanistic selection process. The principle of parsimony compels him to reduce the two to one.

Now v. Aster considers that the 'kernel' in this very *typical* argument is that the 'felt need' plus the 'striving' itself is made the cause of the appearance of purpose-serving organs, etc. But to make this the cause in every case demands the 'omnipotence of the need,' but, since it is just this that v. Aster finds contrary to fact, he thinks thus to refute Pauly. For, he argues, even in our own case only certain limited parts of the body can be influenced by the will, and in no case does the detailed mechanism, the means, come into consciousness; nor does the body always obey the will — rather, only when the will stands in connection with a certain physiological constellation in the brain can the act follow, but even then only in certain cases, namely, when it is in the *interest* of the individual to have it so, *i. e.*, when the act is useful or 'objectively purposeful.' From this v. Aster concludes, in refutation of Pauly as he thinks, that 'subjective purposefulness' is only a special case of 'objective,' thus reversing this author's reduction.

Concerning this, it seems to me, all that must be added to a position

like Pauly's in order to make an attack like v. Aster's quite pointless *logically*, is that in all organic structures, organs, events, etc. there is a consciousness or a will immanent, yet discontinuous with other consciousness. Thus the purposefulness of all reflex acts of the lower centers is compatible with a 'spinal cord consciousness' and in the very nature of the case this cannot be disproved by appealing to the introspection of cortical consciousness.

However, v. Aster concludes from his argument that, for example, in the case of our striving after that which is pleasurable, etc., — this being the useful — there is an unusually purposeful arrangement: our striving and willing serve the objective purpose of conserving the organism without our being conscious of this. Every organism in fact, has the peculiarity that it reacts purposefully, and so conduces to its own conservation, and, with a change of environment, to new species. The scientific problem is, then, to show that for such and such a function an organ must appear in a certain manner and not otherwise.

As concerns v. Aster's 'objective teleology' I cannot see anything in it, as he has defined and developed it, which is really different from mechanism. The only ground for retaining the term is, accordingly, possibly to describe vital phenomena, inasmuch as they have certain specific characters coördinate with certain specific inorganic properties, as a special case of mechanism. Accordingly, I see really no ground for, at least only confusion in, the conclusion reached, that the origin and nature of organic bodies can not be explained by the laws of mechanistic physics and chemistry. For such an explanation or subsumption can be granted and yet the admission be made at the same time, that, for specific organic properties, specific organic laws in terms, perhaps, of teleology must be found. Any dualism, then, would be only a dualism of species under the genus mechanism.

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PRINCETON UNIVERSITY.

*Space and Geometry in the Light of Physiological, Psychological and Physical Inquiry.* ERNST MACH. Translated by T. J. McCORMACK. Chicago, Open Court Publishing Co., 1906. Pp. 148.

"The three essays constituting the present volume were written originally for *The Monist*, 1901-3. Last year they were partly incorporated in their original German in Professor Mach's latest published work, *Erkenntniss und Irrtum*."

The titles of the three essays are: 'On Physiological, as distinguished from Geometrical, Space'; 'On the Psychology and Natural Development of Geometry'; 'Space and Geometry from the Point of View of Physical Inquiry.'

Some of the topics treated (briefly) in the first essay are: The space of vision and that of touch; the correspondence of physiological and geometric space; the non-coincidence of the physiological spaces; correlation of visual and tactual space, and physiological influences in geometry. Under the last heading a list of instances are mentioned, including, for example, right and left; division of space into right angles; positive and negative coördinates as these are reckoned to the right or to the left, upward or downward.

In the second essay, again, many topics are briefly treated. Some of their titles will suggest the contents: The Notion of Constancy, of Rigidity, Physical Origin of Geometry ('geometry bears the distinctest marks of its origin from the interest centering in the spatial relations of *physical bodies*'), Practical Origin of Geometry, Empirical Origin of Geometry.

"Our geometrical knowledge is derived from various sources. We are *physiologically* acquainted, from direct visual and tactual contact, with many and various spatial forms. With these are associated physical (*metrical*) experiences (involving comparison of the space-sensations evoked by different bodies under the same circumstances), which experiences are in their turn also but the expressions of other relations obtaining between sensations. These diverse orders of experience are so intimately interwoven with one another that they can be separated only by the most thoroughgoing scrutiny and analysis. Hence originate the widely divergent views concerning geometry. Here it is based on pure visualization (*Anschauung*), there on physical experience, according as the one or other factor is overrated or disregarded. But both factors entered into the development of geometry and are still active in it to-day."<sup>1</sup>

In the third essay the author endeavors 'to define his attitude as a physicist toward the subject of metageometry so called.'<sup>2</sup>

"Our notions of space are rooted in our *physiological* organism. Geometric concepts are the product of the idealization of *physical* experiences of space. Systems of geometry, finally, originate in the *logical* classification of the conceptual materials so obtained. All three factors have left their indubitable traces in modern geometry. Epistemological inquiries regarding space and geometry accordingly

<sup>1</sup>P. 83.

<sup>2</sup>P. 94.

concern the physiologist, the psychologist, the physicist, the mathematician, the philosopher, and the logician alike, and they can be gradually carried to their definitive solution only by the consideration of the widely disparate points of view which are here offered."<sup>1</sup>

In this essay too we have a great variety of topics each briefly treated but all bearing on metageometry, *e. g.*, Riemann's Physical Conception of Geometry, the Measure of Curvature and the Curvature of Space, Sacchieri's Theory of Parallel, Researches of Gauss and of Stolz, the contributions of Lobachevski and Bolyai, and so on. In short, "by the comparison of space with other manifolds, more general concepts have been reached, of which the geometric represents a special case. Geometric thought has thus been freed from conventional limitations, heretofore imagined insuperable.

"By the demonstration of the existence of manifolds allied to, but different from space, entirely new questions have been suggested."<sup>2</sup>

Thus the purpose of the author is to show and to trace the empirical origin of the highest abstractions in geometrical reasoning, and thereby to add this further argument in support of the extreme empiricism and anti-conceptualism of his general philosophical views.

We certainly have to thank the Open Court Publishing Company for adding this little book to the other works of Professor Mach that they have published in English.

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#### NATURE AND VALIDITY OF KNOWLEDGE.

*Ueber die Erfahrungsgrundlagen unseres Wissens.* A. MEINONG.

(Abhandlungen zur Didaktik und Philosophie der Naturwissenschaft, 6.) Berlin, 1906. Pp. iii + 113.

A review that would do full justice to this monograph would make as many pages of print as the original. It is a most concise and keen analysis of perception as an act of knowing and of its evidential value. Unfortunately the book has the fault of most of Meinong's writings, namely, a needlessly difficult style, especially unfortunate in the present instance where the writing is intended for readers outside the innermost philosophical circle. This fault is to some extent redeemed by a careful three-page summary at the end of the book.

The book is divided into four sections:

I. These coexists with our empirical knowledge a knowledge independent of experience and, in this sense, *a priori*. This independence, however, does not belong to the presentation (*Vorstellung*) but

<sup>1</sup> *Ibid.*

<sup>2</sup> P. 143.

to the judgment (*e. g.*, red is different from green). *A priori* knowledge is based upon the nature of its subject-matter; its truth is evident; and its validity is necessary quite apart from the question whether or not its object exists.

Experiential knowledge in the proper sense, or immediate experience, is synonymous with apprehension (*Wahrnehmung*). All instances of apprehension (no matter how this fact may be obscured by language) are existential judgments with positive 'objectives' (so the author names the objective thing whose existence is asserted). Their objects are real, are things, never mere qualities. That is, we never apprehend merely the quality green but *something* green (not grün, but ein Grünes); and the fact that *green* is not green whereas a *green thing* is green distinguishes between a quality and a thing. Again, all apprehension is *present* apprehension and has, as an essential characteristic evidential value (*Evidenz*). This latter though immediately given lacks complete certainty (*Notwendigkeit*).

II. The chief problem of the monograph is: When may perceptions (*Aspekte*, that is, *Scheinwahrnehmungen*) be regarded as true acts of apprehension (*wirkliche Wahrnehmungen*)? At first we are led to say that the whole field of external perception cannot be so regarded, for primary qualities are no less subjective than are the secondary. This introduces us to the chief discussion of the book, in which are examined first inner or self-perception, usually thought to base its judgments on complete evidence, and secondly outer perception, often thought to lack all evidence.

III. This section gives an admirable analysis of the evidential value of inner perception. Of course it is an error to ascribe to inner perception complete certainty; still such a thing as inner apprehension is to be found. The most favorable conditions for this are offered by objects existing only in the presentation itself; or, as the author puts it, "what really exists here are inwardly directed contents," that is, contents interpreted as belonging to the self.

Now apprehension must be *present* apprehension but this condition cannot be fulfilled by self-perception, for the best the mind can do is to have the apprehension and its content meet at a present point or in a present line (in einem Gegenwärtigkeitspunkte, resp. einer Gegenwärtigkeitslinie). In short the normal relation between the two is immediate succession. Hence, the evidential value of inner perception has degrees, just as has memory, — degrees varying with the nearness by which it approaches the present as a limit (*Gegenwärtigkeitsgrenze*); that is, the nearer perception and content perceived

come to be coexistent, the more certain the judgment. Thus even inner perception is conjectural and has corresponding degrees of evidential value.

IV. This gives the author some hope for the evidential value of external perception (!) We are not obliged to deny it every characteristic of genuine apprehension (!) Here is another book in which problems of epistemology are muddled by the issue between realism and idealism and (alas) also by the question of the primary and secondary qualities. Here is the fourth section of a keen piece of analysis rendered utterly fallacious because the author transposes the logically prior and posterior. To make the problem of the evidential value of outer perception and the definition of the term 'exist' logically dependent upon the issue between realism and subjective idealism, instead of making the latter dependent upon the former, can only lead to such misunderstandings as the following:

"Man hört zwar oft genug, dass es die 'Phänomene' der Wärme, des Lichtes, etc., sind, die die Physik zu erforschen habe; und noch in seiner jüngsten Publikation legt E. Mach in bezug auf 'das Land des Transzendenten' das 'offene Bekenntniss' ab, 'dass dessen Bewohner' seine 'Wissbegierde gar nicht reizen.' Die Zuverlässigkeit innerer Wahrnehmung und die bewährte Beobachtungsgabe des hochverdienten Physikers in gebührenden Ehren: aber ich kann unmöglich glauben, dass er seine Erlebnisse im gegenwärtigen Falle wirklich richtig beschrieben hat. Und so zweifle ich nicht daran dass gerade dieses 'Land des Transzendenten' es ist, dem auch seine so erfolgreichen Bemühungen galten und gelten. Phänomene als solche sind unentbehrliche Erkenntnismittel, sie sind aber niemals Ziele unseres Strebens nach Erkenntnis des Wirklichen."<sup>1</sup>

Thus we are here treated again with a discussion whether or not, and how far, *noumena* are knowable, and all this to determine the evidential value of outer perception. The problem of the primary and secondary qualities remains, in the author's mind, the same muddle that Locke left it. If we cannot solve these problems to the satisfaction of all of us, it does seem too bad that we cannot at least agree which of two problems logically precedes the other; and if we cannot come to an agreement regarding the solution of one problem, it seems too bad that we are therefore unable to understand one another when we take up the next.

At any rate we are told that we have in outer perception good conjectural evidence for the existence of things, but poor evidence for

<sup>1</sup> P. 106.

their properties. However, we have good reason to believe that thing differs from thing when its phenomena differ, and we can do something in the way of counting external entities.

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*The Nature of Truth.* HAROLD H. JOACHIM. Oxford, 1906.

This work is a criticism of three conceptions as to the nature of truth. No one of these conceptions nor any combination of them is regarded as adequate and final, so that the outcome of the criticism is mainly negative. Although this result is held by Joachim to have a positive value in making clear where the problem lies, it seems to the reviewer that his main contribution to the subject lies in the various criticisms he takes up apart from the rather unsatisfactory negative result. These criticisms we consider to be of the very greatest value.

The first conception with which he deals is that of truth as 'correspondence,' *i. e.*, we have truth when an idea or a judgment of the mind is in one-one correspondence with a reality or a fact other than itself. This is the old copy-theory or representative theory of truth. According to Joachim there seem to be three difficulties with this conception. First, in a one-one correspondence between an idea and a reality, though it may be easy to see the relation between one part of the idea and the corresponding part in the reality, it is difficult to understand the relation between the whole of the idea and the whole of the reality, because the whole is teleological in nature and not a mere sum of its parts. Secondly, if the idea is exactly like the reality, then it becomes identical with it and we have no longer any correspondence. Thirdly, a judgment of the mind cannot be absolutely separated from its corresponding reality, for a judgment is after all something real, and reality cannot be conceived except as in some way given to a mind. Complete separation of reality and mind would mean no relation between them and hence no truth.

The second conception makes truth a 'quality of independent entities.' Truth is independent of the mind, 'experiencing makes no difference to the facts.' Every fact is in and for itself, it may or may not become related to the mind so that the mind may apprehend it. If this conception is accepted, a disagreeable alternative must be faced, The truth which never is apprehended by the mind is unknowable; and such truth as reaches the mind becomes the mind's individual possession, leaving it no means of getting beyond a sort of subjectivism.

The third conception is that of 'systematic coherence.' Just as a

hypothetical judgment involves something beyond itself, so every fact or every single truth leads to some further truth; and just as a hypothetical judgment ultimately falls back upon a categorical judgment, so single truths and facts involve something final. This final something is a 'significant whole' in which every truth and every fact must find its place and in which all parts of the whole hang together in an organic fashion. This 'whole' is 'self-fulfilling, and 'self-fulfilled,' it is a complete 'concrete' individual, an 'ideal experience.' The difficulty with this conception comes out when we consider that all contradictions must be reconciled in the 'whole'; truth and error, the universal or static side of human knowledge, and the side of growth and development must find a place in the 'ideal experience.' But so far as human knowledge goes this reconciliation can hardly be accomplished. For all knowledge there is a kind of dualism between the universal and the particular, between the static and the dynamic; the most perfect truth we can imagine must be true of something, hence it is relative. Are we therefore forced to return to the 'correspondence' conception of truth? Joachim thinks not, because it leaves us in worse difficulties than the 'coherence' conception does. 'Correspondence' is a 'symptom' of 'coherence,' and 'coherence' is a 'symptom' of ultimate truth, the reality of which Joachim never doubts, although he admits that it is unknowable.

Joachim's main difficulty seems to be that he puts reality above knowledge, that he does not develop an idea of truth within the realm of the knowable. We should agree with some form of the 'coherence' conception of truth, but we hardly think that it should be characterized as an 'experience' or as 'individual,' though we should hold to its ideality. A mathematical or physical system of truth ought to give us a basis for the essential characters of truth. Abstractness should not be feared, for an abstract whole is just as much a whole as one which aims at including all single truths and all facts. It may be that through the combination and interaction of a number of relatively independent abstract systems the whole of truth can best be characterized: such a whole would not be 'organic' or 'individual,' but it would be coherent and therefore in some sense one.

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*The Ground of the Validity of Knowledge.* EDWARD G. SPAULDING. J. of Phil., Psychol., and Sci. Meth., 1906, III., 197-208, 257-266, 309-317, 371-380.

In this series of four papers Professor Spaulding discusses the epistemology of scientific knowledge and knowing. At the outset, in order to avoid misleading ambiguities, 'experience' is limited, by a tentative definition, to the bounds of the conscious individual. Among the many kinds of experiences the most important is the experience of need, or conscious demand, characterized by a feeling of conflict and accompanied or followed by the felt-need of a readjustment. From a classification of needs the writer selects the intellectual needs, subdivided into logical and alogical, as deserving special attention. To the 'logical need,' defined as the felt demand for formal consistency, is opposed the 'alogical need,' the felt demand for success. Because this need, arising when a readjustment is demanded between the individual and his environment, has for its ideal not formal consistency but success, and because a successful readjustment is known to preserve and further life, the alogical need may well be called biological. Moreover, if the ultimate end of all needs is the conservation of life, then to the biological need (in its broadest sense) as end are subordinated all other needs as means. Obviously there is required a reliable means which will constitute the successful readjustment demanded by the alogical or biological need. This means is found in science and especially in physics, which, as a method of prediction by the use of symbols, furnishes us with the fore knowledge of things and events requisite for success. But if knowledge of the future, or the inference-prediction of physical science, is to constitute the condition of successful readjustment, it is of the utmost importance that we discover the conditions of successful prediction. To insure the success of this inference-prediction, our practical attitude demands, in addition to the formal consistency of the inference-process and the correctness of data, an order and uniformity external to and in some way 'other than' the inference itself. This order may be termed the *transcendent* as implying a something which is in some respect 'beyond' the immanent.

The demand for a transcendent is one of implication. This implication is not, however, a matter of mere assumption, nor is it to be regarded as bare implication if implication and assumption are understood to reject the proofs for the existence of a transcendent; that which is assumed may exist independent of the assumption, and the implied is always provable. The structure of implication in general may be stated as follows: That which is implied is both 'beyond'

and 'in' the implier, and this simultaneous 'beyond' and 'in' forms two points in an unequivocal and asymmetrical relation. Of this genus there are two species: Logical implication, in which this generic relation, constituting here the formal consistency of the inference-process, holds between 'terms' which are both propositional; and alogical or biological implication, where one term of the relation constituting in this species the condition of success, is external, independent of and different in kind from the other term. Thus the demand of alogical-inference for a transcendent is one of biological implication; the transcendent is both 'in' and 'beyond' the inference-process, conditioning its success, as the implied is 'in' and 'beyond' the implier; it is a permanent, unalterable 'other,' independent of that which implies it in every respect except for its implication. Inasmuch as the transcendent is, in some way, 'in' the inference-experience, it is possible at this point to recognize a wider experience which will consist of the conscious experiences of the individual plus the transcendent.

It has been indicated that in the logical inference-process, by virtue of the presence of formal implication, a transcendent is necessitated. Not only do logical and alogical knowledge by inference imply a transcendent, but an analysis of other types of alogical cognition, as memory, imagination, perception and the concept (which also are found to be characterized by the determinate relation of the simultaneous 'in' and 'beyond'), leads to the conclusion that all knowledge transcends itself. Moreover, as a distinguishing mark between logical and alogical cognition, it is evident, from a further examination of normal perception and its object, that the reference not only of alogical inference but of all alogical knowledge to a transcendent, is, in every particular, identical with biological implication.

'Correctness of data,' which, in addition to consistency and a transcendent, conditions success, is constituted by an unequivocal correspondence between the qualitative and quantitative differences in the 'content' of perception and those in the object. The objective differences imply that the transcendent is a manifold, in which the perceived object exists as an element in uniform connection with other elements. Further, from the inevitableness of perception, it becomes evident that the transcendent manifold is a causal agent, the mediator of the reference to itself and, because the ontological predicates of causal inter-connection and permanence justify the generalization, the possibility of all experience.

For further information as to the manner in which the transcend-

ent is known in those conscious experiences which it conditions, we may again turn to physical science and analyze the knowing experience of the physicist. Such an analysis discloses the following constituents: First, a consciousness of symbols; second, the meaning or 'content' of these symbols, present as imaged or not-imaged, either above or below the threshold of consciousness, and developing relations which are not given in perception; and, third, the object known or the transcendent, which is 'in,' as known, and yet 'beyond' the meaning, forming with it a differentiated unity. The transcendent is known, then, as a necessary term in the alogical relations of scientific knowing; with its distinctive characteristics of permanence, independence, causal regularity and difference in kind it constitutes the ground for the validity of knowledge.

Finally, this transcendent manifold, which, together with individual experience may indifferently be called an 'absolute,' but is not therefore to be considered as homogeneous, is not only the fundamental condition of successful alogical knowledge but also the origin of the need of success.

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*Image, Idea and Meaning.* R. F. A. HOERNLÉ. *Mind*, 1907, XVI., 70-100.

"There is no idea . . . which is wholly meaningless. An idea always carries with it a relation to something other than itself. . . . Even 'square circle' is not meaningless. . . . This refusal of the elements to be joined is an experience as distinct and definite in its way as the experience of the blending of 'equilateral' and 'triangle' (p. 75). "In ordinary thinking our attention is not directed towards or even mainly to the ideas but primarily to their meanings. And it is only when we fail to understand, that the idea itself (the word or image) becomes prominent in consciousness" (pp. 75-76).

Both the idea and the meaning, Hoernlé says, must be presented to consciousness (p. 76). Lipps says the whole is perceived but only some parts of it are apperceived. Bosanquet says that in the logical use of the idea part of the meaning as well as all of the existence of the idea is crushed out. So Bradley. James says that the meaning is the fringe of the idea. But this just reverses what introspection reveals to us, viz., that the meaning is the focal thing in consciousness except when for some reason it fails us, when we bring the image into the focus for the sake of more adequately getting the meaning.

Hoernlé holds that the meaning is a peculiar element which ever

eludes introspection and thus description, and that therefore the consciousness of the meaning of a thought is never identical with the consciousness of the word or image or other sensational element which serves as the sign or cue to the meaning. Meaning, he says, can never be pinned down, and the same is true of feeling. For this reason he opposes James' analysis of emotion into organic sensations and his analysis of the activity experience into kinæsthetic sensations. The experience of 'love,' for example, is something more than what you find in your consciousness, the sound of the word, some definition that might occur to you, etc. All introspection reveals is the empty shells which contained the meaning which has fled (p. 78).

But Hoernlé gives no explanation of what this peculiar element is or what is meant by its elusiveness. He cites with approval James' reference to it as the transitive phase of consciousness, as opposed to a substantive phase of which an image would be an example. But he does not work out the implications of this idea of transition, and this may have something to do with his deliberate abjuration of all metaphysical issues in his discussion.

What is the meaning which as such never comes to consciousness and yet which somehow maintains the unity and continuity of the experience, but the fact of habit? And what is the significance of its elusiveness except that as long as it is functioning adequately there is no occasion for its being brought to consciousness, whereas, when it is brought to consciousness by reason of its inadequacy as habit, that very fact involves its transformation into something else (image) in order to make it adequate. Meaning, accordingly, never comes to consciousness as such, because when quite adequate as meaning it is perfectly habitual or automatic. If it be objected that this is just what one would regard as a *meaningless* experience, if it is insisted that meaning must be conscious, then the relatively adequate or *meaningful* experience would be the emotional experience which represents the culmination of the reflective process. What is in consciousness at the moment when as in ordinary experience we are conscious of the object (rather than as psychologists, conscious of the image) is that feature of the object or situation which is the handle to all the rest. The consciousness of meaning, therefore, must be in terms of image of some sort, though it may be so vague and total in character, so suffused by emotion and so imperfectly articulate, that it would not be readily identified as the same in function as the more clearly describable image of the psychology books.

Meaning would thus be simply the image, the idea, at work in successfully controlling the situation, and the apparent negligibility of

a great part of the imagery, the crushing out of part of the meaning, as Bosanquet puts it, means not that it is not functioning as part of the meaning of the object or situation, but that it is irrelevant and so taken for granted in the specific situation. The fact of its being ignored may signify simply that it is so adequately playing its part as meaning that it need not be in the focus or even in the fringe of consciousness.

Hoernlé cites the account of the way in which Helen Keller first came to know that 'w-a-t-e-r' meant the wonderful cool something that was pouring over her hand, and makes a point of the fact that she had been able, even before this first consciousness of meaning as such, to associate words and acts, words and objects, words and situations. The implication is that at this point some peculiar element is introduced which was not there before. But does this signify anything more than that up to that time she had experienced meanings in connection with specific situations and had perhaps established certain meaning-habits in relation to such situations, but that now for the first time these intellectual habits come in to reinforce each other?—hence the glow of happy wonder with which she originally felt and subsequently recalls this experience: it meant a wider and firmer control of experience.

Such a psychology of meaning and of image in relation to habit would render unnecessary Hoernlé's mystical appeal to a peculiar elusive element and the resolute stand which he feels he must take on the self-transcendence of consciousness (p. 81). It is quite true that in knowledge I not only have an idea but that the idea is of something, but the only condition in which I am compelled to distinguish the meaning (the 'something') from the idea (the image) is precisely an experience in which I am not adequately getting the meaning, the 'something,' so that the distinction between the idea as image and the idea as meaning is a bifurcation which takes place within the knowledge process or consciousness and in no sense involves a self-transcendence.

Thus the truth would lie in the very doctrine which on his theory must be rejected, namely, that the meaning of an idea is to be found in the other ideas (p. 83). If images are just habits coming to consciousness for reconstruction, then the meaning of any particular image lies just in the process of mutual interaction and reorganization of these images (of these habit systems). An idea, as Professor Dewey says, is any mental state which is used for the sake of referring easily and fluidly to *any* object in *any* phase, thus freeing and facilitating our intercourse with things. "The idea as purely psychical is the object in solution, moving towards re-precipitation in some object which is more

anticipated, which thus satisfies more, and hence has increase of meaning" (*Journ. of Philos., Psy. & Sci. Methods*, March 31, 1904). Ideas are simply 'a more adequate methodological device for facilitating and controlling knowledge—that is to say, acquaintance and transactions with objects.'

Any experience in so far as it subserves this function is an idea, and apparently there is no experience which under suitable conditions may not thus serve as the handle for getting hold of other experiences, a means or instrument or intermediary to other situations.

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*La logique avant les logiciens.* A. CHIDE. *Revue philosophique*, 1906, LXII., 160-185.

The author undertakes to determine by means of a study of primitive language and the manner of its formation what is the character of the natural and universal processes of the human mind in reasoning. The specific question is whether the Aristotelian form of reasoning by the subsumption of concepts is the primitive and universal form. The theory of roots by which the earlier linguistic scholars explained the growth of knowledge was conformable to the hypothesis that this was the primitive form. On this theory language is held to have started with a few simple forms and to have attained its present complexity through the addition of the various endings in declension, conjugation, etc. This theory the author opposes on purely linguistic grounds, calling attention to the fact that it has been rejected by more recent scholars. This theory of roots implies an accompanying evolution of thought from primitive simple forms by increasing discrimination and differentiation to its present complexity. The author holds that on the contrary the development has been from early manifold and complex forms of thought and speech through gradual generalization and the formation of concepts to the present simplified logical processes. These are late products of thought and not mere transcripts from experience. To assume that these logical processes are characteristic of the most primitive thought is to impose upon the facts the results of centuries of development. There is abundant linguistic evidence which goes to show that many other relations had an earlier existence than that of subsumption, as for example the relation of quantity, the categories of number, unity and plurality, space and time, the distinction between subject and object, the sexes, etc. Therefore, the relations underlying formal logic cannot, he concludes, be primitive and universal forms of thought.

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